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Martin Weber

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EXAMINER

KAHN, RACHEL

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/595,337

**Applicant(s)**

WEBER ET AL.

**Examiner**

RACHEL KAHN

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claim 1 is objected to because of the following informalities:

Claim 1 appears to require, in the thermoplastic composition, three components: A, B and c. However, it is unclear whether "c" is intended to be separate from component B, or whether it is part of "B3." The use of a lower case "c" is especially confusing.

Furthermore, the format of claim 1 is confusing in the following ways:

The use of upper and lower case letters to designate groups and subgroups appears inconsistent. For instance, subgroups within group "B2" are designated with upper case letters (e.g. "B21" and "B22"). It is confusing to have both "B21" and "b21," and similarly, both "B22" and "b22". It is also unclear as to why the designation "b21" is necessary, as it does not appear to represent a component of the composition.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 4, 7, 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496).

Dorrestijn teaches a polymer composition comprising:

- A) A polyamide (referred to as (B), see col. 6, lines 12-14). See col 4, lines 11-54 for a general description of the polyamides.
- B) A compatibilizing terpolymer (referred to as (C), see col. 6, lines 15-26 and for additional details, see col. 4, line 55 through col. 5, line 27) comprising:
- a vinyl aromatic monomer (preferably styrene)
  - acrylonitrile, alkyl methacrylate, alkyl acrylate
  - a dicarboxylic anhydride (e.g. maleic anhydride)
- C) An ABS graft copolymer (referred to as (A), see col. 6, lines 6-11). See col 2, line 58 through col. 4, line 10 for a general description of the graft copolymers.

Dorrestijn fails to teach the use of a piperidine cap on at least one end group of the polyamide component A.

Ilg et al discloses an inherently light and heat stabilized polyamide which has at least one piperidine compound bonded to the backbone of the polymer chain. See abstract. Ilg teaches that the primary amino group on the piperidine compound reacts with the carboxy end group of the polyamide molecule, thus rendering the polymer light and heat stable (column 2, lines 1-25). The piperidine compounds shown in column 2, line 10 and column 3, line 5 match the formula (I) recited in instant claim 1. Given Ilg's teaching that polyamide articles tend to degrade when exposed to light or heat (e.g. during melt extrusion) (col 1, lines 15-25), it would have been obvious to one of ordinary skill in the art to modify the polyamide in the composition taught by Dorrestijn by adding

pyrrolidine caps, as taught by Ilg, in order to impart heat and light stability to the composition.

Regarding instant **claim 4**:

First, there is no limitation that component "C2" (a rubber-free matrix polymer) and component "B" (a rubber-free copolymer) cannot be the same. The terpolymer described above for component "B" fulfills the requirements for component "C2" recited in instant claim 4.

Second, Dorrestijn et al. clearly envisions the use of extraneous resins such as SAN (styrene acrylonitrile copolymers) as an optional ingredient. See col. 4, lines 8-10.

Third, as noted in the objection to claim 1 above, component "c" may be interpreted as a choice for copolymer "B." Thus, the recitations of claim 1 are fulfilled by a composition comprising just

**A)** polyamide "A" and

**C)** diene rubber containing graft copolymer "c."

Claim 4 requires an *additional* component, "C2," which, by description, may be indistinguishable from component "B1" in claim 1. The requirement of an *additional* component by claim 4, therefore, is fulfilled by a composition which contains

**A)** polyamide "A"

**C)** diene rubber containing graft copolymer "c" and,

**C2)** rubber free copolymer which is the same as "B" in claim 1

The above composition is taught by Dorrestijn (and described above in the rejection of claim 1).

Regarding instant **claim 7**, Dorrestijn discloses a process for preparing the polymer composition by mixing all of the components together simultaneously. See col. 6, lines 29-45.

Dorrestijn et al. is silent on a first step of mixing a portion of the graft copolymer and the polyamide, and then adding the rest of the components together into the mixture.

However, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the process by first mixing a portion of the graft copolymer and the polyamide together, since changes in the sequence of adding ingredients have been held to establish *prima facie* obviousness. In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Regarding **claims 9 and 10**, Dorrestijn discloses using the polymer composition to form a "moulded part," including dashboards and interior door panels (molding, see col. 5, lines 43-59).

**Claims 2 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496), as applied to claim 1 above, and further in view of **Weber et al** (WO 01/64792).

Ilg fails to teach a piperidine compound where R is a group of the formula -NH-R<sup>8</sup>-NH, where R<sup>8</sup> is an alkylene group having from 1 to 20 carbon atoms.

Weber discloses a molding composition similar to that taught by Dorrestijn in view of Ilg, comprising both a piperidine-capped polyamide (page 29, line 8) and an impact modification rubber (page 29, line 40). Weber teaches piperidine-caps identical to the piperidine cap taught by Ilg as well as piperidine caps identical to the one recited in instant claim 2. The recitations of instant claim 2 can be found on page 30, lines 12-15.

In view of Weber's recognition that, in a molding composition comprising piperidine-capped polyamide and rubber, piperidine caps with and without an R group of the formula -NH-R<sup>8</sup>-NH are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute the piperidine taught by Ilg with piperidine having an R group of the formula -NH-R<sup>8</sup>-NH, and thereby arrive at the present invention. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding instant **claim 11**

First, there is no limitation that component "C2" (a rubber-free matrix polymer) and component "B" (a rubber-free copolymer) cannot be the same. The terpolymer described above for component "B" fulfills the requirements for component "C2" recited in instant claim 11.

Second, Dorrestijn et al. clearly envisions the use of extraneous resins such as SAN (styrene acrylonitrile copolymers) as an optional ingredient. See col. 4, lines 8-10.

Third, as noted in the objection to claim 1 above, component "c" may be interpreted as a choice for copolymer "B." Thus, the recitations of claim 1 are fulfilled by a composition comprising just

**A)** polyamide "A" and

**C)** diene rubber containing graft copolymer "c."

Claim 11 requires an *additional* component, "C2," which, by description, may be indistinguishable from component "B1" in claim 1. The requirement of an *additional* component by claim 4, therefore, is fulfilled by a composition which contains

**A)** polyamide "A"

**C)** diene rubber containing graft copolymer "c" and,

**C2)** rubber free copolymer which is the same as "B" in claim 1

The above composition is taught by Dorrestijn (and described above in the rejection of claim 1).



**Claims 3 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496), as applied to claim 1 above, and further in view of **Ilg et al** (US 6867266).

Neither Dorrestijn nor Ilg '496 teach a mixture composed of piperidine capped polyamide with polyamide free of piperidine caps.

Ilg '266 teaches polyamide for producing articles, films and fibers which is light stabilized by piperidine groups along the backbone of the polymer (col 1, lines 20-30). Ilg '266 teaches that light stabilizing properties are achieved when the piperidine concentration is less than 0.5 wt % based on the weight of polymer forming monomers (col 1, lines 30-35). Ilg '266 further teaches a method wherein light stabilized polymer is blended with additional polymeric material which is free from light stabilizing moieties (col 2, lines 16-27). This method is applied to polyamides in column 14, lines 4-30.

Given Ilg's teaching that light stabilized polymer is in tight supply in the world market, and that any way to improve manufacturing capacity would benefit the industry (col 1, lines 35-53), and in view of the fact that only 0.5 wt % of light stabilizing moiety is necessary to impart light stability, it would be obvious to blend non-stabilized polyamide with piperidine capped polyamide, as taught by Ilg '266, in the process taught by Dorrestijn in view of Ilg '496, in order to improve manufacturing capacity (col 1, lines 53-56).

Regarding instant **claim 12**:

First, there is no limitation that component "C2" (a rubber-free matrix polymer) and component "B" (a rubber-free copolymer) cannot be the same. The terpolymer described above for component "B" fulfills the requirements for component "C2" recited in instant claim 12.

Second, Dorrestijn et al. clearly envisions the use of extraneous resins such as SAN (styrene acrylonitrile copolymers) as an optional ingredient. See col. 4, lines 8-10.

Third, as noted in the objection to claim 1 above, component "c" may be interpreted as a choice for copolymer "B." Thus, the recitations of claim 1 are fulfilled by a composition comprising just

**A)** polyamide "A" and

**C)** diene rubber containing graft copolymer "c."

Claim 12 requires an *additional* component, "C2," which, by description, may be indistinguishable from component "B1" in claim 1. The requirement of an *additional* component by claim 4, therefore, is fulfilled by a composition which contains

**A)** polyamide "A"

**C)** diene rubber containing graft copolymer "c" and,

**C2)** rubber free copolymer which is the same as "B" in claim 1

The above composition is taught by Dorrestijn (and described above in the rejection of claim 1).

**Claims 5 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496) as applied to claims 1 and 4 above, and further in view of **Van Bokhoven et al** (US 4560725).

Dorrestijn et al. is silent on two graft copolymers of ABS that differ by at least 5% by weight from one another in rubber content.

Van Bokhoven discloses a molding composition with good flow, impact strength (even at low temperatures), hardness and stiffness for use in fabricating car components (col 2, lines 13-20). The composition comprises (see col 1, lines 50-67):

A) a thermoplastic polymer (referred to as D)

B) a rubber free copolymer (referred to as C), and

C) two rubber graft copolymers (referred to as A and B), which differ in rubber content by at least 5 weight % (col 2, lines 1-2).

Given that Dorrestijn discloses a similar thermoplastic molding composition for use in fabricating car components, and expresses a similar desire for high impact resistance especially at low temperatures, it would be obvious to one of ordinary skill in the art to modify the composition taught by Dorrestijn by adding an additional rubber graft copolymer (with a rubber content which differs from the first by at least 5 wt%), as taught by Van Bokhoven, in order to improve the flow, impact strength, hardness and stiffness of the composition.

**Claims 6, 18 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496) as applied to claims 1, 4 and 5 above, and further in view of **Gottschalk et al.** (US 6,284,830)

Dorrestijn et al. discloses the use of additives such as lubricants. See col. 5, lines 60-67. The examples disclosed by Dorrestijn contain 1.1 wt% of "customary additives." (col 6, line 43). However, Dorrestijn et al. is silent on the specifics of the lubricant (i.e. stearates).

Gottschalk et al. teaches of similar compositions (polyamides with multiple grafts and rubber-free components, and additives). See abstract. Gottschalk et al. teaches that the additive can be a lubricant such as alkyl stearates. See col. 30, lines 34-39 and col. 30, line 66 through col. 31, line 5.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the composition of Dorrestijn et al. with the lubricant, stearate, because Gottschalk et al. teaches that stearates are suitable lubricants for similar compositions. Case law holds that the selection of a known material based on its suitability for its intended use supports prima facie obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.*, 325 US 327, 65 USPQ 297 (1045).

**Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496) and **Weber et al** (WO 01/64792), as applied to claim 2 above, and further in view of **Van Bokhoven et al** (US 4560725).

Dorrestijn et al. is silent on two graft copolymers of ABS that differ by at least 5% by weight from one another in rubber content.

Van Bokhoven discloses a molding composition with good flow, impact strength (even at low temperatures), hardness and stiffness for use in fabricating car components (col 2, lines 13-20). The composition comprises (see col 1, lines 50-67):

A) a thermoplastic polymer (referred to as D)

B) a rubber free copolymer (referred to as C), and

C) two rubber graft copolymers (referred to as A and B), which differ in rubber content by at least 5 weight % (col 2, lines 1-2).

Given that Dorrestijn discloses a similar thermoplastic molding composition for use in fabricating car components, and expresses a similar desire for high impact resistance especially at low temperatures, it would be obvious to one of ordinary skill in the art to modify the composition taught by Dorrestijn by adding an additional rubber graft copolymer (with a rubber content which differs from the first by at least 5 wt%), as taught by Van Bokhoven, in order to improve the flow, impact strength, hardness and stiffness of the composition.

**Claims 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn** et al (US 5948858) in view of **Ilg** et al (US 6150496) and **Ilg** et al (US 6867266), as applied to claim 3 above, and further in view of **Van Bokhoven** et al (US 4560725).

Dorrestijn et al. is silent on two graft copolymers of ABS that differ by at least 5% by weight from one another in rubber content.

Van Bokhoven discloses a molding composition with good flow, impact strength (even at low temperatures), hardness and stiffness for use in fabricating car components (col 2, lines 13-20). The composition comprises (see col 1, lines 50-67):

A) a thermoplastic polymer (referred to as D)

B) a rubber free copolymer (referred to as C), and

C) two rubber graft copolymers (referred to as A and B), which differ in rubber content by at least 5 weight % (col 2, lines 1-2).

Given that Dorrestijn discloses a similar thermoplastic molding composition for use in fabricating car components, and expresses a similar desire for high impact resistance especially at low temperatures, it would be obvious to one of ordinary skill in the art to modify the composition taught by Dorrestijn by adding an additional rubber graft copolymer (with a rubber content which differs from the first by at least 5 wt%), as taught by Van Bokhoven, in order to improve the flow, impact strength, hardness and stiffness of the composition.

**Claims 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn** et al (US 5948858) in view of **Ilg** et al (US 6150496) and **Weber** et al (WO 01/64792), as applied to claim 2 above, and further in view of **Gottschalk** et al. (US 6,284,830)

Dorrestijn et al. discloses the use of additives such as lubricants. See col. 5, lines 60-67. The examples disclosed by Dorrestijn contain 1.1 wt% of "customary additives." (col 6, line 43). However, Dorrestijn et al. (as well as Ilg and Weber) are silent on the specifics of the lubricant (i.e. stearates).

Gottschalk et al. teaches of similar compositions (polyamides with multiple grafts and rubber-free components, and additives). See abstract. Gottschalk et al. teaches that the additive can be a lubricant such as alkyl stearates. See col. 30, lines 34-39 and col. 30, line 66 through col. 31, line 5.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the composition of Dorrestijn et al. with the lubricant, stearate, because Gottschalk et al. teaches that stearates are suitable lubricants for similar compositions. Case law holds that the selection of a known material based on its suitability for its intended use supports prima facie obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.*, 325 US 327, 65 USPQ 297 (1045).

**Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn et al** (US 5948858) in view of **Ilg et al** (US 6150496) and **Ilg et al** (US 6867266) as applied to claim 3 above, and further in view of **Gottschalk et al.** (US 6,284,830)

Dorrestijn et al. discloses the use of additives such as lubricants. See col. 5, lines 60-67. The examples disclosed by Dorrestijn contain 1.1 wt% of "customary

additives." (col 6, line 43). However, Dorrestijn et al. (as well as Ilg and Ilg) are silent on the specifics of the lubricant (i.e. stearates).

Gottschalk et al. teaches of similar compositions (polyamides with multiple grafts and rubber-free components, and additives). See abstract. Gottschalk et al. teaches that the additive can be a lubricant such as alkyl stearates. See col. 30, lines 34-39 and col. 30, line 66 through col. 31, line 5.

Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the composition of Dorrestijn et al. with the lubricant, stearate, because Gottschalk et al. teaches that stearates are suitable lubricants for similar compositions. Case law holds that the selection of a known material based on its suitability for its intended use supports prima facie obviousness. *Sinclair & Carroll Co vs. Interchemical Corp.*, 325 US 327, 65 USPQ 297 (1045).

**Claims 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dorrestijn** et al (US 5948858) in view of **Ilg** et al (US 6150496) and **Weber** et al (WO 01/64792), as applied to claim 2 above, and further in view of **Ilg** et al (US 6867266).

Neither Dorrestijn nor Ilg '496 teach a mixture composed of piperidine capped polyamide with polyamide free of piperidine caps.

Ilg '266 teaches polyamide for producing articles, films and fibers which is light stabilized by piperidine groups along the backbone of the polymer (col 1, lines 20-30). Ilg '266 teaches that light stabilizing properties are achieved when the piperidine



concentration is less than 0.5 wt % based on the weight of polymer forming monomers (col 1, lines 30-35). Ilg '266 further teaches a method wherein light stabilized polymer is blended with additional polymeric material which is free from light stabilizing moieties (col 2, lines 16-27). This method is applied to polyamides in column 14, lines 4-30.

Given Ilg's teaching that light stabilized polymer is in tight supply in the world market, and that any way to improve manufacturing capacity would benefit the industry (col 1, lines 35-53), and in view of the fact that only 0.5 wt % of light stabilizing moiety is necessary to impart light stability, it would be obvious to blend non-stabilized polyamide with piperidine capped polyamide, as taught by Ilg '266, in the process taught by Dorrestijn in view of Ilg '496, in order to improve manufacturing capacity (col 1, lines 53-56).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RACHEL KAHN whose telephone number is (571)270-7346. The examiner can normally be reached on Monday to Friday 8:00 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RACHEL KAHN/  
Examiner, Art Unit 1796

Rk

/Randy Gulakowski/  
Supervisory Patent Examiner, Art Unit 1796

